

Science Update

NAL Compiles Conservation Program Info

The National Agricultural Library's Water Quality Information Center has developed a series of bibliographies for the U.S. Department of Agriculture. The four-volume set provides a comprehensive review of the current literature covering conservation programs, including research needed to improve practices. The bibliographies support the Conservation Effects Assessment Project. CEAP is a USDA initiative to ascertain the environmental benefits of practices implemented through various USDA conservation programs. Under CEAP, valuations will be made of nutrient-, manure-, and pest-management systems; buffers and tillage methods; irrigation and drainage practices; and efforts to protect and restore wetlands and establish wildlife habitat.

The NAL bibliographies include more than 2,700 citations, abstracts when available, and URLs when documents are freely available online. All four of the bibliographies are on the World Wide Web at www.nal.usda.gov/wqic/ceap/ceapbibs.html. *Len Carey, USDA-ARS National Agricultural Library, Beltsville, Maryland; phone (301) 504-5564, e-mail lcarey@nal.usda.gov.*

First Pinto Bean To Resist Anthracnose

In dry edible beans, anthracnose causes unsightly cankers on plant stems, pods, and seeds. Endemic to Michigan, New York, and other Great Lakes states, the fungal culprit, *Colletotrichum lindemuthianum*, recently emerged as a threat to 350,000 acres of susceptible pintos grown in Minnesota and North Dakota. About half the nation's \$629 million dry edible bean crop is grown in those two states and Michigan.

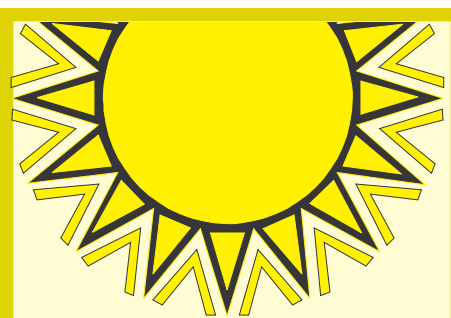
A new pinto bean germplasm line, USPT-ANT-1, which harbors what's called the Co-42 gene, is resistant to the most destructive races of anthracnose. It's now available for use in developing resistant

varieties of this important legume crop. Commercial pintos derived from the new germplasm line would be the first to resist anthracnose. Field trials have produced seed yields that compare favorably to Othello and Buster, commercial check varieties. Researchers at Michigan and North Dakota State universities and the University of Idaho collaborated on this development. Small quantities of seeds of USPT-ANT-1 are available. *Phillip N. Miklas, USDA-ARS Vegetable and Forage Crops Production Research Unit, Prosser, Washington; phone (509) 786-9258, e-mail pmiklas@pars.ars.usda.gov.*

Water Beats Salt as a Cattle Lure

While the promise of water or salt has been traditionally used to attract cattle to new grazing areas on the range, research has shown that water is the more powerful draw. Using Global Positional System (GPS) devices mounted on collars, researchers tracked the movements of cattle over large expanses. They found that the animals were nine times more attracted by water than by salt. The cattle were also willing to travel farther to get to water and would alter their habits to stay close to a water source. But salt is an excellent carrier for mineral supplements important to cattle reproduction and weight gains, so it should always be readily accessible.

These findings could be helpful to producers who could coax their animals to occupy undergrazed areas by selectively opening or closing gates to watering points. Cows have the ability to learn and remember, so they know how to find water sources they've previously visited. The GPS technology is also being used to evaluate the effects of topography and forage quantity and quality on livestock distribution. *David C. Ganskopp, USDA-ARS Range and Meadow Forage Management Research Unit, Burns, Oregon; phone (541) 573-8922, e-mail david.ganskopp@oregonstate.edu.*



Model Helps Apples Keep Cool, Avoid Sunburn

Ripening apples are vulnerable to sun scald, which causes bronzed or bleached spots on the fruit's skin. So growers often protect their fruit from blistering heat with cooling baths from overhead sprinkler systems. This is called evaporative cooling and has been used by growers for years to prevent sun scald and encourage the deepening of the apples' rosy color, among other things. But until recently, growers had to guess when to turn it on and when to turn it off, so they have sometimes overdone it, running their sprinklers from early morning to late at night.

Using a newly developed model, a grower may one day know precisely when to turn off the sprinkler system, based on actual field climatic data. This would not only conserve large amounts of water, but also allow for drying-out periods that would help prevent some of the fungal diseases that plague apple trees. *Robert G. Evans, USDA-ARS Northern Plains Agricultural Research Laboratory, Sidney, Montana; phone (406) 433-9496, e-mail revans@sidney.ars.usda.gov.*

